```
LLL              IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE  RRRRRRRRRRR
LLL              IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE  RRRRRRRRRRRR
LLL              IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE  RRRRRRRRRRRR
LLL                 III       NNN        NNN  KKK      KKK   EEE               RRR       RRR
LLL                 III       NNN        NNN  KKK     KKK    EEE               RRR       RRR
LLL                 III       NNN        NNN  KKK    KKK     EEE               RRR       RRR
LLL                 III       NNNNNN     NNN  KKK   KKK      EEE               RRR       RRR
LLL                 III       NNNNNN     NNN  KKK  KKK       EEE               RRR       RRR
LLL                 III       NNNNNN     NNN  KKKKKKKKK      EEE               RRR       RRR
LLL                 III       NNN   NNN  NNN  KKKKKKKKK      EEEEEEEEEEEE       RRRRRRRRRRRR
LLL                 III       NNN   NNN  NNN  KKKKKKKKK      EEEEEEEEEEEE       RRRRRRRRRRRR
LLL                 III       NNN    NNN NNN  KKKKKKKKK      EEEEEEEEEEEE       RRRRRRRRRRRR
LLL                 III       NNN    NNNNNN   KKK   KKK      EEE               RRR   RRR
LLL                 III       NNN    NNNNNN   KKK    KKK     EEE               RRR   RRR
LLL                 III       NNN    NNNNNN   KKK    KKK     EEE               RRR   RRR
LLL                 III       NNN        NNN  KKK     KKK    EEE               RRR       RRR
LLL                 III       NNN        NNN  KKK     KKK    EEE               RRR       RRR
LLL                 III       NNN        NNN  KKK      KKK   EEE               RRR       RRR
LLLLLLLLLLLLLLL  IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE   RRR       RRR
LLLLLLLLLLLLLLL  IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE   RRR       RRR
LLLLLLLLLLLLLLL  IIIIIIIIII   NNN        NNN  KKK       KKK  EEEEEEEEEEEEEEEE   RRR       RRR
```

```
PPPPPPPP   RRRRRRRR   EEEEEEEEEE   FFFFFFFFFF   IIIIII   XX        XX
PPPPPPPP   RRRRRRRR   EEEEEEEEEE   FFFFFFFFFF   IIIIII   XX        XX
PP     PP  RR     RR  EE           FF             II     XX        XX
PP     PP  RR     RR  EE           FF             II     XX        XX
PP     PP  RR     RR  EE           FF             II        XX  XX
PP     PP  RR     RR  EE           FF             II        XX  XX
PPPPPPPP   RRRRRRRR   EEEEEEE      FFFFFFF        II           XX
PPPPPPPP   RRRRRRRR   EEEEEEE      FFFFFFF        II           XX
PP         RR  RR     EE           FF             II        XX  XX
PP         RR  RR     EE           FF             II        XX  XX
PP         RR    RR   EE           FF             II     XX        XX    ....
PP         RR    RR   EE           FF             II     XX        XX    ....
PP         RR      RR EEEEEEEEEE   FF           IIIIII   XX        XX    ....
PP         RR      RR EEEEEEEEEE   FF           IIIIII   XX        XX    ....
```

```
RRRRRRRR   EEEEEEEEEE   QQQQQQ
RRRRRRRR   EEEEEEEEEE   QQQQQQ
RR     RR  EE           QQ      QQ
RR     RR  EE           QQ      QQ
RR     RR  EE           QQ      QQ
RR     RR  EE           QQ      QQ
RRRRRRRR   EEEEEEE      QQ      QQ
RRRRRRRR   EEEEEEE      QQ      QQ
RR  RR     EE           QQ   QQ QQ
RR  RR     EE           QQ   QQ QQ
RR    RR   EE           QQ     QQ
RR    RR   EE           QQ     QQ
RR      RR EEEEEEEEEE   QQQQ  QQ
RR      RR EEEEEEEEEE   QQQQ  QQ
```

Version: 'V04-000'

```
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```
++

MODULE: PREFIX.REQ

FACILITY: LINKER

ABSTRACT:
            REQUIRE FILE TO DEFINE LOCALLY SOME
            INTERESTING GENERAL SYMBOLS, STRUCTURES AND MACROS

HISTORY:

    AUTHOR: T.J. PORTER 15-DEC-76

    MODIFICATIONS:

    V03-001 JWT0099         Jim Teague              14-Mar-1983
            Add useful macros "sd" and "dynamic_descriptor".

--
```

```
!++
!
! FUNCTIONAL DESCRIPTION:
!               THIS REQUIRE FILE DEFINES SOME GENERAL, LOCAL VALUES AND MACROS
!        WHICH CANNOT OR ARE BEST NOT DEFINED GLOBALLY.
!
!--
!
MACRO
        sd [a] = bind %name('sd_',a) = $descriptor(a)%,
        dynamic_descriptor = block [dsc$c_s_bln,byte] preset ( [dsc$w_length] = 0,
                                                               [dsc$b_class] = dsc$k_class_d,
                                                               [dsc$a_pointer] = 0 )%,

        SHORT = UNSIGNED(6)%,              ! SHORT LITERAL ATTRIBUTE
        BYTLIT = UNSIGNED(8)%,            ! UNSIGNED BYTE ATTRIBUTE
        WORDLIT = UNSIGNED(16)%,          ! UNSIGNED WORD ATTRIBUTE

! MACRO THAT DESCRIBES A STRING

        STRINGDESC(STRING) = %CHARCOUNT(STRING), UPLIT(%ASCII STRING)%,

! MACRO TO GENERATE A QUADWORD STRING DESCRIPTOR

        DESCRIPTOR(STRING) = VECTOR[2] INITIAL(STRINGDESC(STRING))%,

! MACRO TO GENERATE A POINTER TO A COUNTED STRING

        CSTRING(STRING) = UPLIT BYTE(%CHARCOUNT(STRING),STRING)%,

! MACRO TO ALLOCATE AN N-CHARACTER STORAGE VECTOR

        CH$SEQUENCE(N) = VECTOR[CH$ALLOCATION(N)]%,

! MACRO TO INITIALIZE SUCCESSIVE LOCATIONS WITH A COUNT FOLLOWED BY A STRING

        COUNTEDSTRING(STRING) = BYTE(%CHARCOUNT(STRING),%ASCII STRING )%;


! Define VMS block structures
!
STRUCTURE
        BBLOCK [O, P, S, E; N] =
                [N]
                (BBLOCK+O)<P,S,E>;

LITERAL
        PROGRAM_REGION = %X'200',         ! DEFAULT BASE OF PROGRAM REGION
        CONTROL_REGION = %X'40000000',    ! START OF CONTROL REGION
        SYSTEM_SPACE = %X'80000000',      ! START OF SYSTEM SPACE
        MAX_ADDRESS = %X'C0000000',       ! MAXIMUM VIRTUAL ADDRESS
        FALSE = 0,                        ! THE LOGICAL VALUES TRUE
        TRUE  = 1;                        ! AND FALSE.
!
!LINKAGE
!    JSB_3 = JSB (REGISTER = 0, REGISTER = 1, REGISTER = 2),
```

```
!     JSB_2 = JSB (REGISTER = 0, REGISTER = 1),
!     JSB_1 = JSB (REGISTER = 0) : NOPRESERVE(1) PRESERVE(2,3,4,5,6,7,8,9,10,11),
!     JSB_FAST = JSB (REGISTER = 0, REGISTER = 1);
!
STRUCTURE
        QUADVECTOR[I;N] =                        ! A VECTOR OF N QUADWORDS
                [ N * 8 ]
                (QUADVECTOR + 8*I);
```

LINKER
LIS

STRPOSIT
LIS

STRUNWDEQ
LIS

STRPOSEXT
LIS

STRREPLAC
LIS

STRSRCHIN
LIS

STRRIGHT
LIS

LINKER

STRTRIM
LIS

LINK
MAP

PREFIX
REQ

ISDSORT
LIS

STRUPCASE
LIS

STRTRANSL
LIS

DATBAS
MDL

TIRAUX
REQ

ISGENC
REQ

STRPREFIX
LIS

DATBAS
LIS